

**ABSTRACT**

A system and method for reducing the latency from timing deviation (TD) measurement to time advance (TA) adjustment. The invention uses a deterministic procedure to coordinate time advance (TA) commands and timing deviation (TD) measurements so that failed transmissions or mobile terminals signal propagation changes can be recognized and corrected much more rapidly. Radio resource efficiency is maximized by minimizing signaling overhead through effectively reducing the frequency of time advance commands. This is accomplished by using TA command signals which include a Connect Frame Number (CFN) to specify particular radio frames for time advance (TA) adjustment. The potential for timing deviation (TD) measurements to be incorrectly processed in conjunction with adjusting a physical reception window and calculating mobile termination location is minimized, without excessive command signaling requirements.